

1970

**OPERATING
SUMMARY**

PARIS

***water pollution
control plant***

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ONTARIO WATER RESOURCES COMMISSION

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Division of Plant Operations

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Water management in Ontario

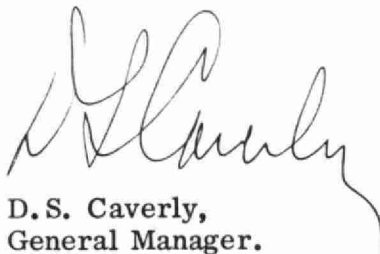
Ontario
Water Resources
Commission


135 St. Clair Ave. W.
Toronto 195
Ontario

Once again we have the privilege of submitting to you our latest detailed report on financial progress and technical activity at your water pollution control plant.

The statistical information contained in this annual operating summary will undoubtedly be a useful barometer of efficiency. Of particular interest will be the comments and recommendations of the regional operations engineer, who was intimately connected with day-to-day operation throughout 1970.

Together with the extensive cost data provided, this information should assist greatly in your general understanding of the problems met and dealt with, and in furnishing a yardstick for possible future expansion.


D.S. Caverly,
General Manager.


D.A. McTavish, P. Eng.,
Director,
Division of Plant Operations.

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CONTENTS

Title page.	1
Flow diagram	2
Design data	3
'70 Review	4
Project costs	6
Process data.	10

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PARIS
water pollution control plant

operated for

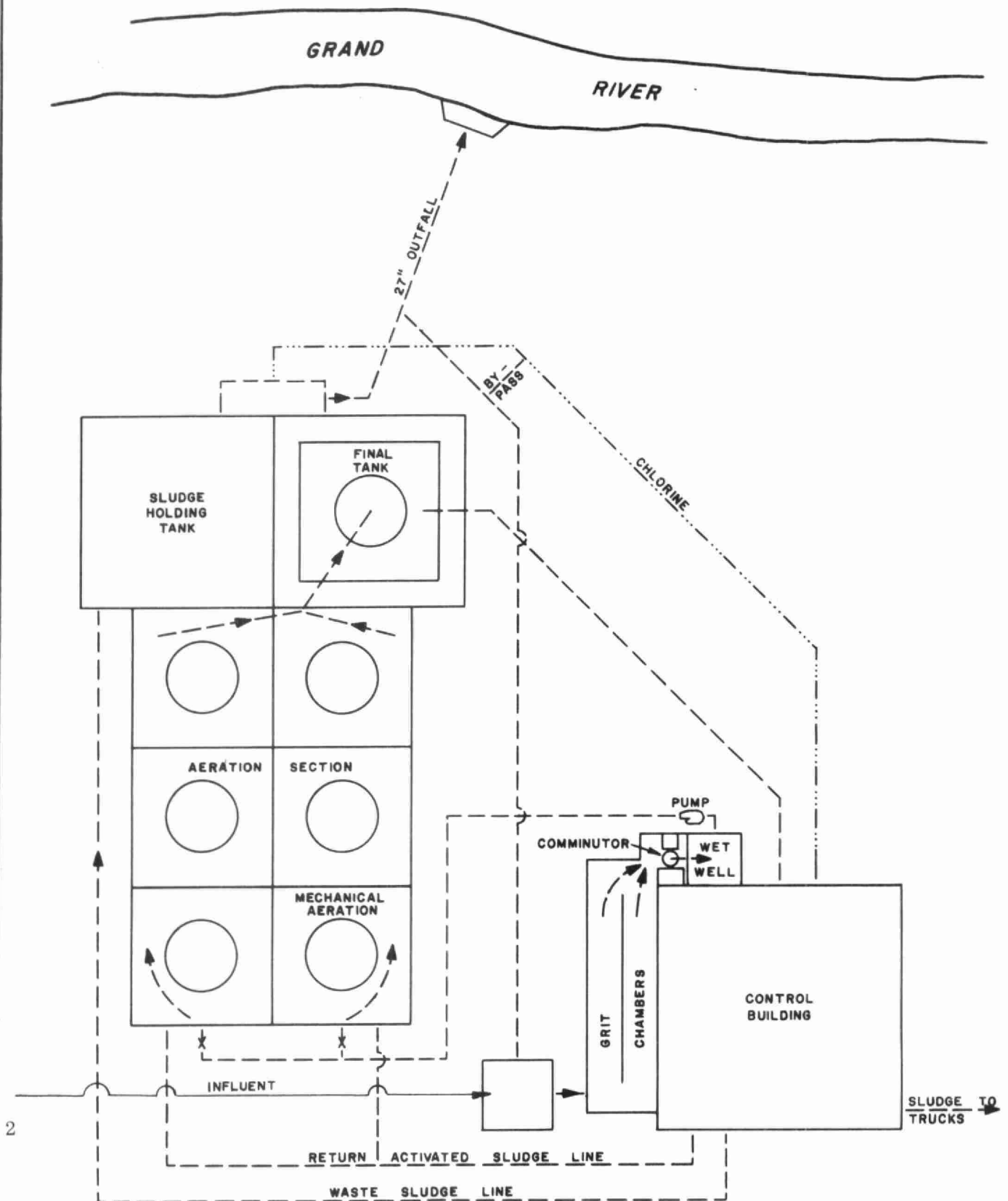
THE TOWN OF PARIS

by the

ONTARIO WATER RESOURCES COMMISSION

1970 ANNUAL OPERATING SUMMARY

PARIS W.P.C.P.
FLOW DIAGRAM



DESIGN DATA

PROJECT NO.	2-0034-59	TREATMENT	Extended Aeration
DESIGN FLOW	0.50 mgd	DESIGN POPULATION	3,600
BOD - Raw Sewage	200 mg/l	SS - Raw Sewage	170 mg/l

PRETREATMENT

Grit Removal

Type: Channel; manually cleaned
Size: Two 25 X 2½ X 2½'

Comminution

Type: Jones & Atwood (1)

RAW SEWAGE PUMP

Type: Worthington
Size: One 335 gpm @ 12' tdh

SECONDARY TREATMENT

Aeration Tanks

Type: Mechanical; single-pass
Size: Two 96 X 32 X 10' (372,000 gal)
Retention: 17.9 hr

Aerators

- Ames Crosta (6)

Secondary Sedimentation

Type: Dorr

Size: Two 36 X 36 X 9' swd
(145,000 gal)

Retention: 3.5 hr

Loading: Surface, 387 gal/ft²/day
Weir, 38,000 gal/ft/day
(one tank)

CHLORINATION

Type: W & T

Size: One 400 lb/day

Chlorine Contact Chamber

- in outfall

OUTFALL

- to Grand River

SLUDGE HANDLING

Holding Tank

- one of the sedimentation tanks, without mechanism, is provided as a holding tank.

'70 REVIEW

GENERAL

A major extension to the sewer system planned for 1970 was postponed by the Town until 1971. Thus the anticipated increase in plant flows did not materialize.

Two standby pumps were installed - one at the Willow Street pumping station and the other at the plant. The pumps provide 100% standby capacity at the plant and 50% at the pumping station under maximum flow conditions.

The canvas shrouds developed by the chief operator prevented a recurrence of ice buildup on the aerator cones.

Continuous monitoring of plant effluent over a two month period (August 15 - October 15) was carried out to determine the process capability in assimilating septic tank wastes. Results indicated that loadings up to 2,000 gallons per day of septic tank wastes could be accepted without additional waste activated sludge haulage. A maximum loading that the treatment process could adequately assimilate was never established as actual feed rates were considerably below our expectations during the test period.

PLANT FLOWS and CHLORINATION

The total raw sewage flow treated at the plant was 93.3 million gallons, a decrease of 4.5 million gallons from 1969. This represented an average daily flow of 0.26 million gallons or 52% of the plant's design capacity of 0.5 mgd.

An average chlorine dosage of 2.6 mg/l was required to maintain a chlorine residual in the final effluent of 0.5 mg/l for a contact period of 15 minutes.

FLOWS	DAILY FLOW mil gal	OCCURRING IN THE MONTH OF	MONTHLY FLOW mil gal	OCCURRING IN THE MONTH OF
Average	.26	—	7.8	—
High	.5	April	10.8	April
Low	.1	approx. all year	6.4	January

PLANT EFFICIENCY

Plant removal efficiency for BOD was similar to 1969 at 95% and for suspended solids was about 7% less than the previous year at 79%. The average final effluent strengths were 10 mg/l BOD and 29 mg/l suspended solids.

CONCLUSIONS

The water pollution control plant operated satisfactorily at approximately 50% of its design flow capacity.

Monitoring of the plant effluent for a two month period to determine the plant's process capability to assimilate septic tank wastes was carried out. Results indicated that septic tank waste loadings up to 2,000 gallons per day could be adequately handled without any process or operational changes.

The average effluent quality was satisfactory with respect to BOD at 10 mg/l and acceptable with respect to suspended solids at 29 mg/l.

PROJECT COSTS

2-0034-59	
NET CAPITAL COST (Final)	\$726,125.80
DEDUCT - Portion financed by CMHC/MDLB (Final)	<u>417,408.90</u>
Long Term Debt to OWRC	<u>\$308,716.90</u>
 Debt Retirement Balance at Credit (Sinking Fund) December 31, 1970	 \$ <u>64,003.15</u>
 Net Operating	\$ 17,087.84
Debt Retirement	6,230.00
Reserve	3,532.74
Interest Charged	<u>17,290.64</u>
 TOTAL	 \$ <u>44,141.22</u>

RESERVE ACCOUNT

Balance @ January 1, 1970	\$ 32,661.83
Deposited by Municipality	3,532.74
Interest Earned	<u>2,151.44</u>
	\$ 38,346.01
 Less Expenditures	 <u>5,089.80</u>
Balance @ December 31, 1970	\$ <u>33,256.21</u>

SPECIAL OPERATING AGREEMENT

NET CAPITAL COST (Final)

DEDUCT - Portion financed by
CMHC/MDLB (Final)

Long Term Debt to OWRC

Debt Retirement Balance at Credit
(Sinking Fund) December 31, 1970

Net Operating Debt Retirement Reserve	\$ 228.79
Interest Charged	<u> </u>
TOTAL	\$ <u>228.79</u>

RESERVE ACCOUNT

Balance @ January 1, 1970	\$1,070.24
Deposited by Municipality	228.79
Interest Earned	<u>74.72</u>
	\$1,373.75
Less Expenditures	<u>-</u>
Balance @ December 31, 1970	<u>\$1,373.75</u>

1970 OPERATING COSTS

PAYROLL	62 %
FUEL	10 %
POWER	15 %
CHEMICALS	2 %
GENERAL SUPPLIES	3 %
EQUIPMENT	< 1 %
REPAIRS & MAINTENANCE	1 %
SUNDRY	9 %
WATER	1 %
TRAVEL	5 %

TOTAL ANNUAL COST

NET OPERATING	39 %
DEBT RETIREMENT	14 %
INTEREST	39 %
RESERVE FUND	8 %

Yearly Operating Costs

YEAR	MILLION GALLONS TREATED	TOTAL OPERATING COSTS	COST PER MILLION GAL	COST PER LB OF BOD REMOVED
1966	*169.98	\$10,267.83	\$ 60.41	4 cents
1967	*183.98	11,463.12	62.30	3 cents
1968	* 75.08	13,098.51	174.46	8 cents
1969	97.80	16,326.58	166.94	9 cents
1970	93.3	17,087.84	183.15	10 cents

* Flow meter inaccurate

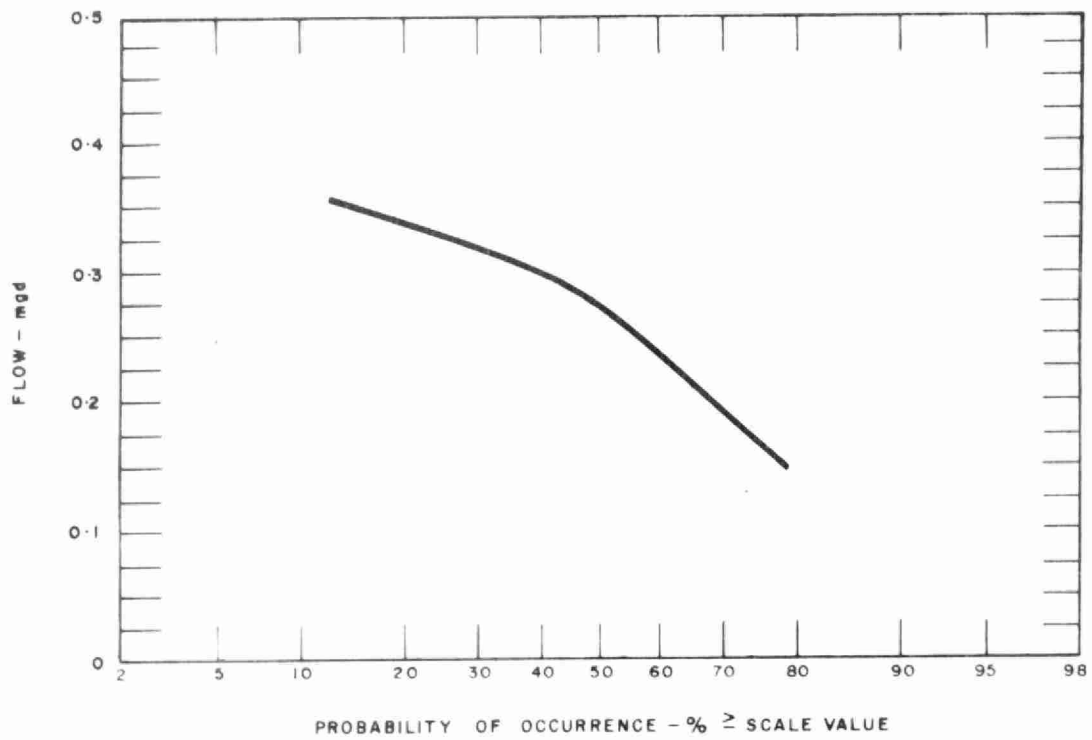
MONTHLY OPERATING COSTS

MONTH	TOTAL EXPENDITURE	PAYROLL	CASUAL PAYROLL	FUEL	POWER	CHEMICALS	GENERAL SUPPLIES	EQUIPMENT	REPAIRS and MAINTENANCE	SUNDRY *	WATER	TRAVEL
JAN	1619.16	881.04	226.79	65.78	-	-	44.05	-	-	401.50	-	-
FEB	1261.80	736.95	129.48	-	243.73	-	5.40	-	-	12.92	24.00	109.32
MAR	1154.19	730.03	96.75	-	212.93	-	55.64	-	-	11.71	-	47.13
APR	1240.22	654.52	162.05	63.43	243.78	-	4.05	-	27.48	28.69	-	56.22
MAY	1108.53	744.71	64.74	-	205.25	-	26.36	-	13.00	-	-	54.47
JUNE	1189.72	660.84	129.47	-	198.13	-	83.44	-	-	30.37	30.75	56.72
JULY	1461.87	633.17	180.54	-	192.08	290.59	46.63	24.47	-	29.89	-	64.50
AUG	1594.33	949.86	202.36	-	206.04	-	49.29	47.25	-	49.35	30.75	59.43
SEPT	1569.06	720.13	137.62	-	216.28	79.17	10.40	-	-	324.82	-	80.64
OCT	1383.55	760.74	162.05	-	221.63	-	86.62	-	-	23.42	30.30	98.79
NOV	1618.54	797.11	137.62	-	204.48	-	36.93	-	63.00	379.40	-	-
DEC	1886.87	654.24	96.90	-	425.56	-	73.40	16.82	128.53	214.31	24.45	252.66
TOTAL	17087.84	8923.34	1726.37	129.21	2569.89	369.76	522.21	88.54	232.01	1506.38	140.25	879.88

BRACKETS INDICATE CREDIT

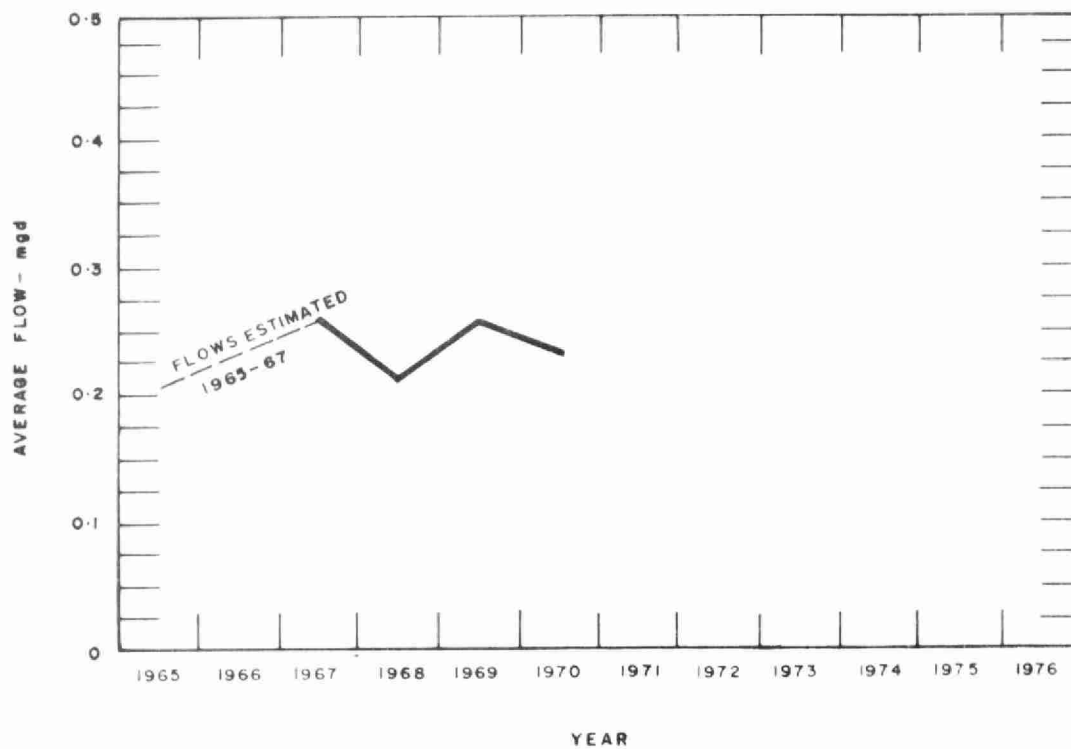
* SUNDRY INCLUDES SLUDGE HAULAGE COSTS WHICH WERE \$518.30

PROCESS DATA



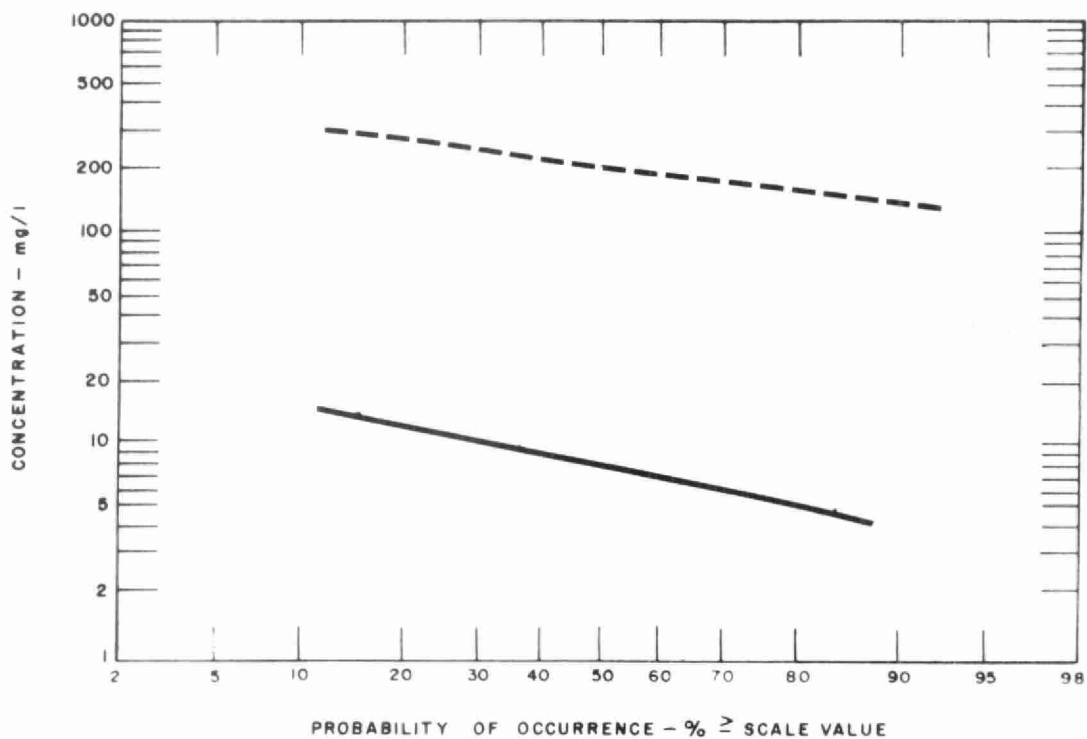
FLAWS

NOMINAL CAPACITY 0.50 MGD

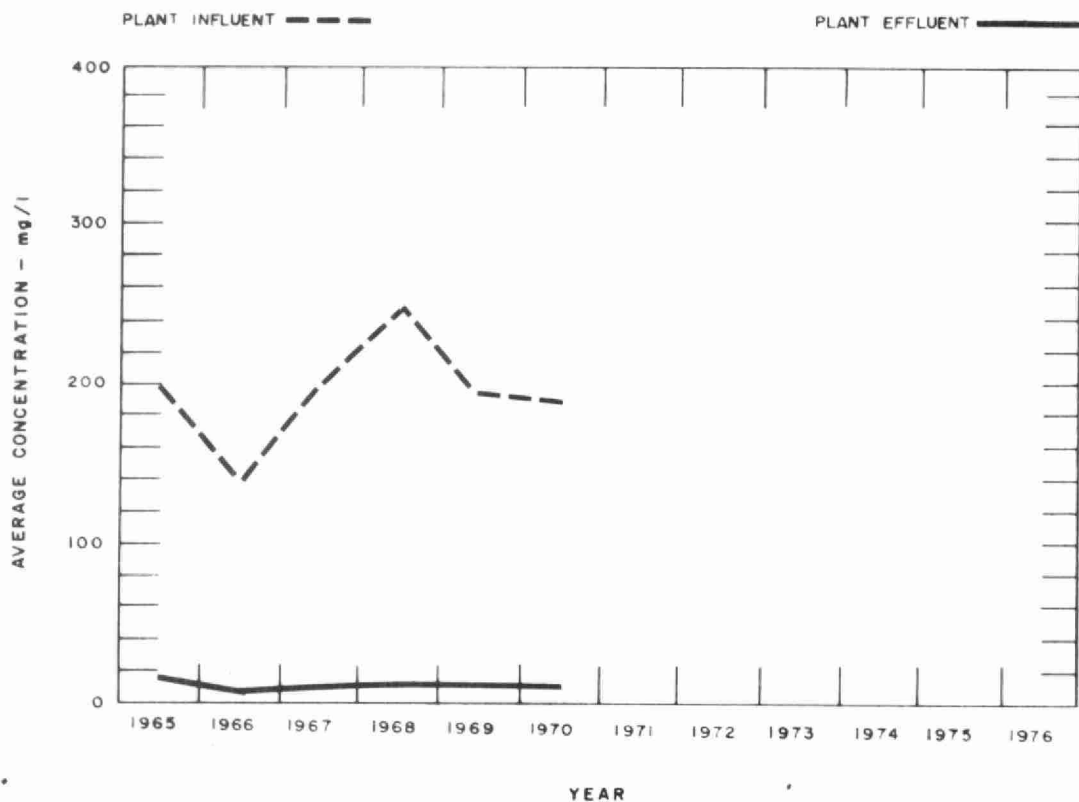


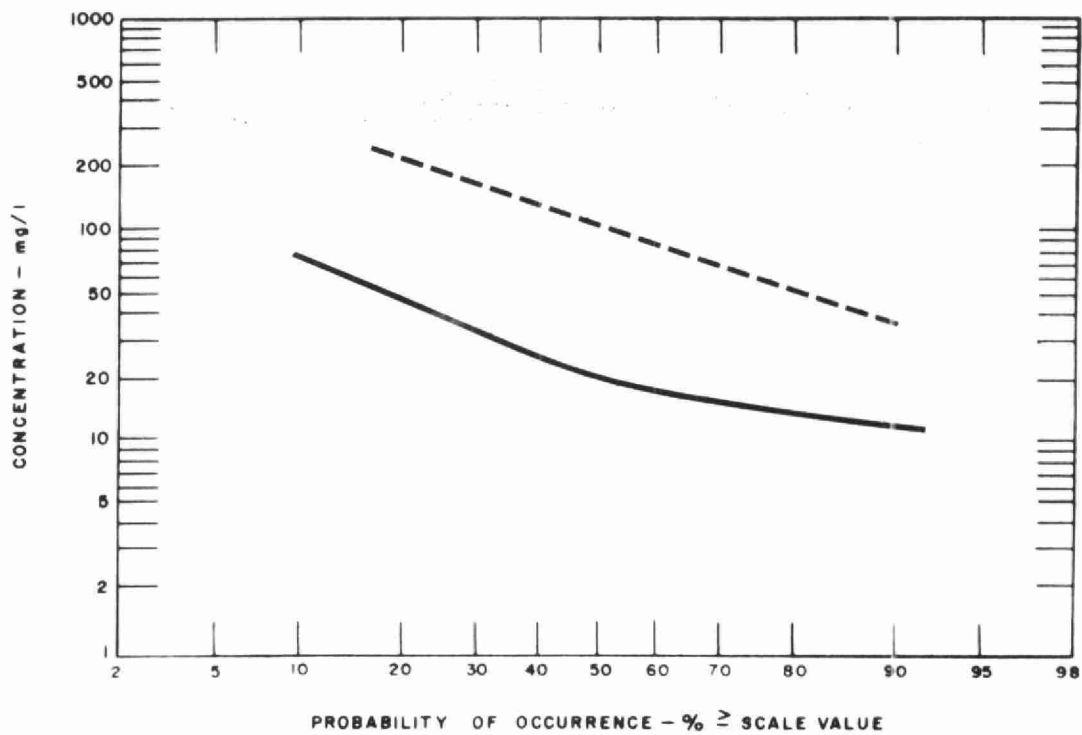
PLANT FLOWS and CHLORINATION

MONTH	TOTAL FLOW		AVERAGE DAILY FLOW		MAXIMUM DAILY FLOW		MINIMUM DAILY FLOW		CHLORINE USED pounds	DOSAGE mg/l
	mil	gal	mil	gal	mil	gal	mil	gal		
JAN	6.4		.21		.3		.1		200	3.3
FEB	6.9		.25		.3		.1		190	2.7
MAR	7.7		.25		.3		.1		210	2.7
APR	10.4		.35		.5		.2		160	2.0
MAY	8.8		.28		.4		.1		210	2.4
JUNE	8.7		.28		.4		.1		200	2.3
JULY	8.1		.26		.4		.1		200	2.5
AUG	7.0		.23		.4		.1		190	2.7
SEPT	7.4		.25		.3		.1		180	2.5
OCT	7.2		.23		.3		.1		190	2.6
NOV	7.6		.25		.4		.1		180	2.4
DEC	7.1		.23		.4		.1		170	2.5
TOTAL	93.3		-		-		-		2280	-
AVERAGE	-		.26		-		-		190	2.6

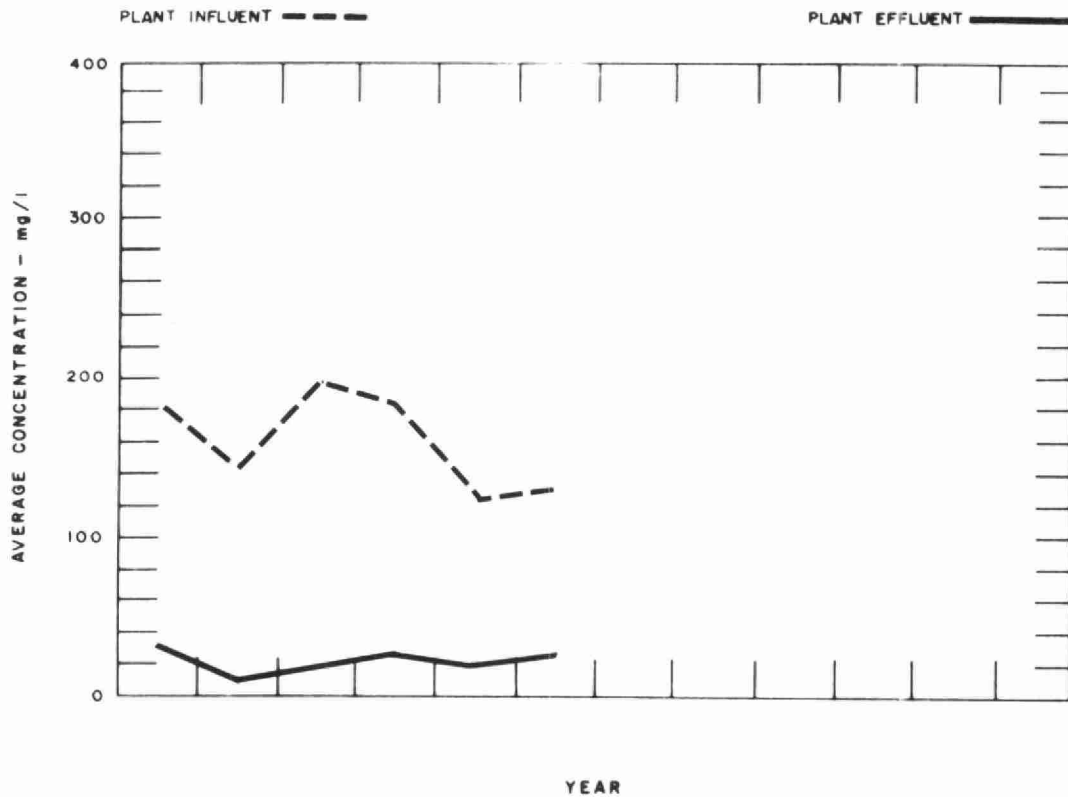


BIOCHEMICAL OXYGEN DEMAND





SUSPENDED SOLIDS



PLANT EFFICIENCY

MONTH	BIOCHEMICAL OXYGEN DEMAND						SUSPENDED SOLIDS						GRIT REMOVED
	INFLUENT		EFFLUENT		REDUCTION		INFLUENT		EFFLUENT		REDUCTION		
	n	mg/l	n	mg/l	%	10 ³ pounds	n	mg/l	n	mg/l	%	10 ³ pounds	cu ft
JAN	2	155	2	12	92	9.2	6	67	6	34	49	2.1	6
FEB	2	175	2	19	89	10.7	6	63	6	42	33	1.4	12
MAR	2	230	2	17	93	16.3	7	128	7	43	66	6.5	15
APR	2	180	2	8	96	17.9	6	81	6	19	77	6.4	12
MAY	2	190	2	7	96	16.1	6	146	6	24	84	10.8	15
JUNE	3	160	3	7	96	13.4	8	172	8	44	74	14.7	15
JULY	2	144	2	7	95	11.1	6	71	6	33	54	3.1	9
AUG	2	205	2	11	95	13.6	7	112	7	16	86	6.7	12
SEPT	2	240	2	4	98	17.4	6	168	6	16	90	11.2	15
OCT	2	195	2	6	97	13.6	6	218	6	13	94	14.7	29
NOV	2	235	2	4	98	17.5	7	256	7	27	90	17.3	12
DEC	2	200	2	13	94	13.2	6	135	6	30	78	7.4	15
TOTAL	25	-	25	-	-	170.0	77	-	77	-	-	102.3	167
AVERAGE	-	191	-	10	95	14.2	-	137	-	29	79	8.5	14

NOTE - n is the number of samples taken

AERATION

MONTH	AVG DAILY FLOW mil gal	AERATION INF.		SECONDY. EFF.		MLSS CONCN mg/l	F/M		AIR USED 1000 cu ft lb BOD	WASTE SLUDGE lb/DAY
		BOD	SS	BOD	SS		lb BOD			
		mg/l	mg/l	mg/l	mg/l		lb MLSS	lb BOD		
JAN	.21	155	67	12	34	10200	.08			
FEB	.25	175	63	19	42	9300	.01			
MAR	.25	230	128	17	43	9700	.02			
APR	.35	180	81	8	19	9900	.02			
MAY	.28	190	146	7	24	9800	.02			
JUNE	.28	160	172	7	44	10000	.01			
JULY	.26	144	71	7	33	10300	.01			
AUG	.23	205	112	11	16	10300	.01			
SEPT	.25	240	168	4	16	10000	.02			
OCT	.23	195	218	6	13	10600	.01			
NOV	.25	235	256	4	27	9300	.02			
DEC	.23	200	135	13	30	7900	.02			
TOTAL	-	-	-	-	-	-	-			
AVERAGE	.26	191	137	10	29	9800	.02			

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